

### Amendments to the Specification

Please replace the Title with the following amended Title:

Automated scalable and adaptive ~~system~~ for memory analysis via identification of leak root candidates

Please delete paragraphs [0017] and [0018] as follows:

~~[0017] According to a claimed invention a computer readable medium for identifying a set of objects in a target application comprises instructions for performing the above steps.~~

~~[0018] Additionally, an information processing system for identifying a set of objects in a target application comprises an analyzer for ranking and generating co-evolving regions; and a tracing agent for attaching to the target application.~~

Please replace paragraph [0016] with the following amended paragraph [0016] and new paragraph [0017]:

[0016] Briefly, according to a claimed invention, a method for identifying a set of objects in a target application includes ~~comprises~~ the steps of: a) receiving a plurality of samples of one or more object reference graphs wherein each object reference graph includes ~~comprises~~ live objects from the target application and their references; b) deriving a ~~plurality~~ set of candidate data structures exhibiting a problematic data structure evolution from the samples; c) ~~determining~~ collecting a plurality of properties of each of the live objects in each of the candidate data structures in relation to data structures over time; and d) using a mixture model, combining

the plurality of the properties of each live object, in a non-linear fashion for ranking leak root candidates within each set of candidate data structures. ~~into a ranking of each object; and e) generating a rank.~~

[0017] Using the mixture model includes steps of: applying binary metrics to each of the candidate data structures for generating a set of potential leak root candidates; assigning a binary metric value to each candidate, wherein a value of zero indicates that the candidate data structure is definitely not a leak root candidate and wherein a value of one indicates that the candidate data structure is a highly probable leak root candidate; and filtering out candidate data structures with any binary metric assigned a value of zero.